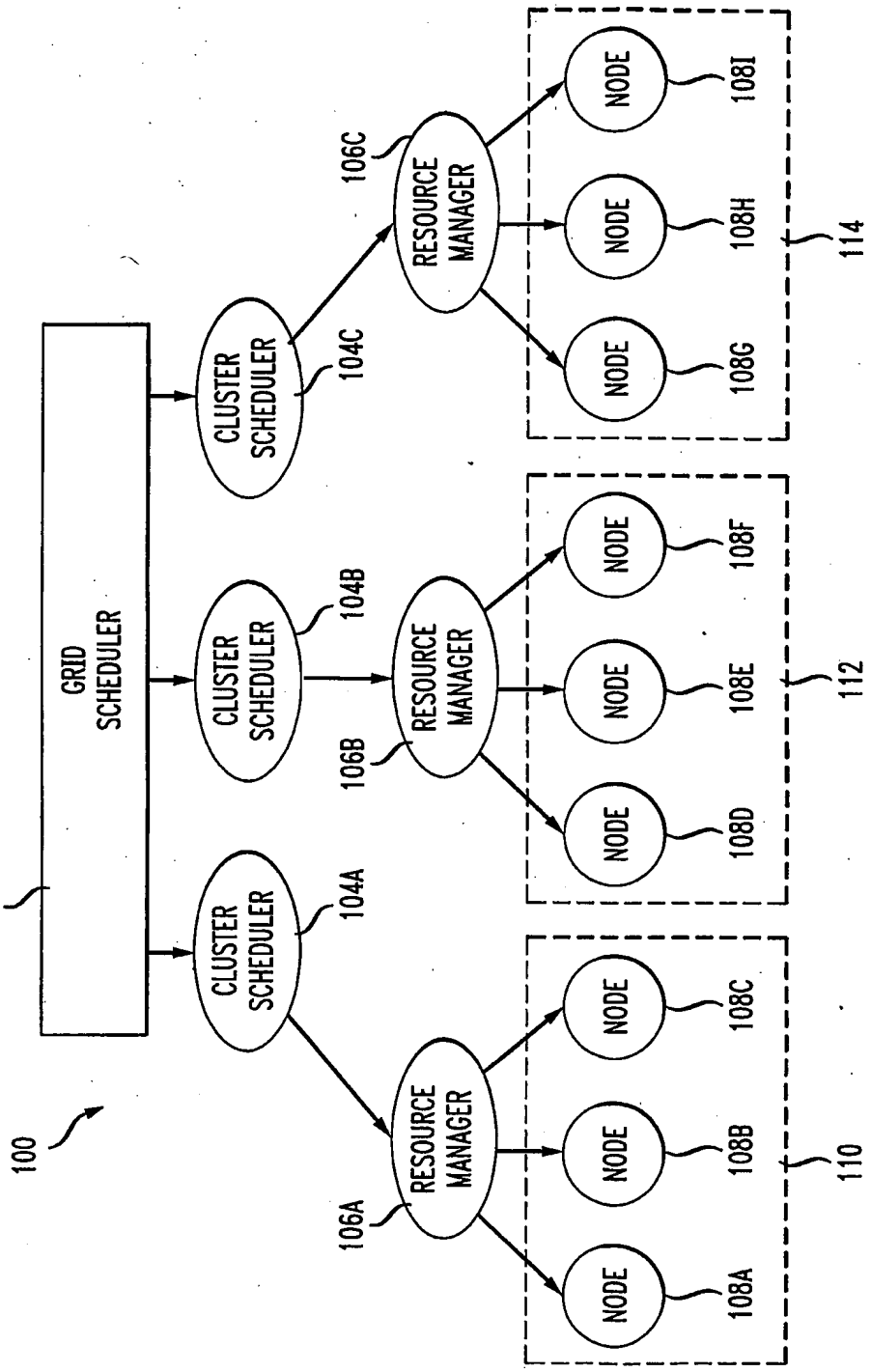


FIG. 1A
PRIOR ART

FIG. 1B
PRIOR ART

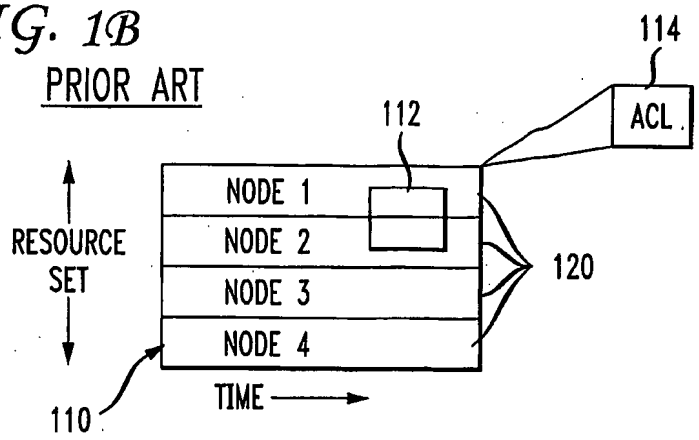


FIG. 2A

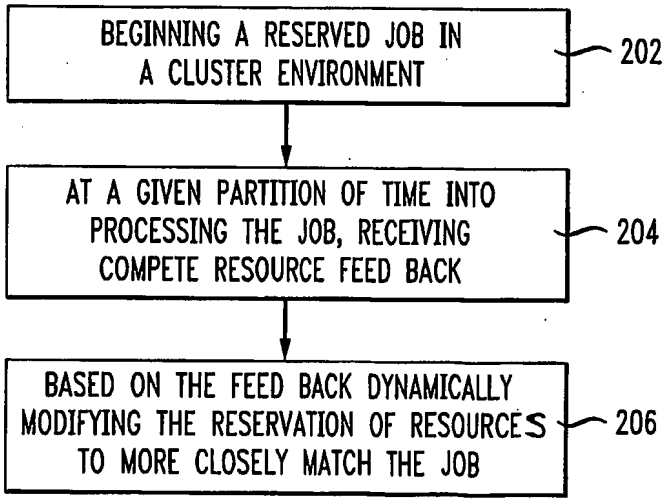


FIG. 2B

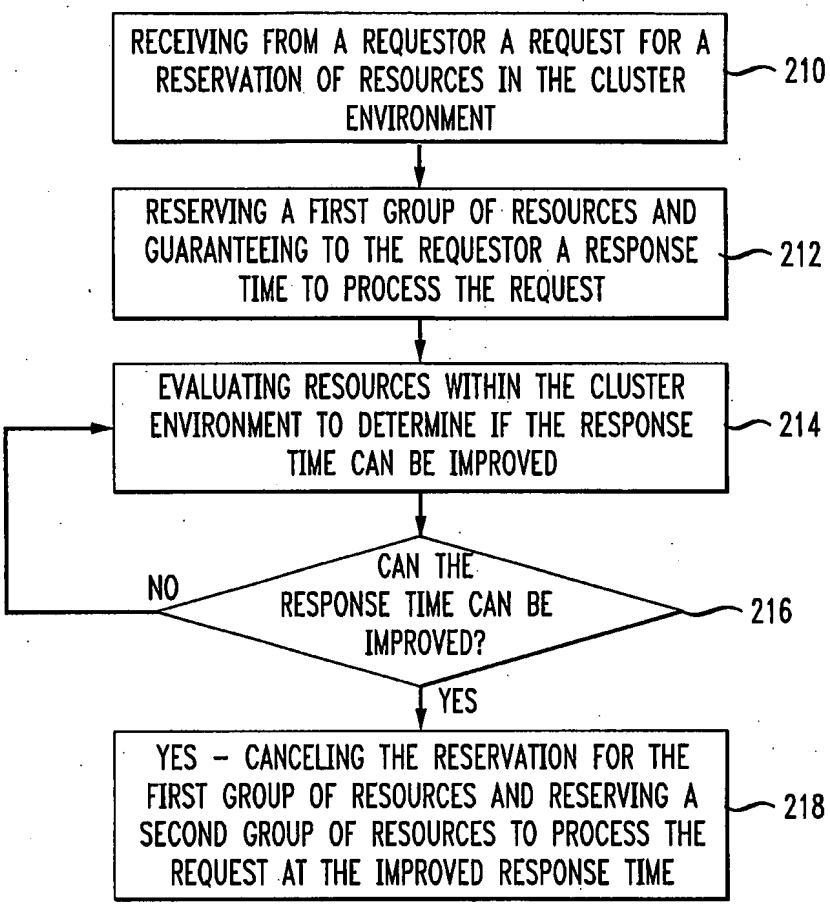

RECEIVING FROM A REQUESTOR A REQUEST FOR A RESERVATION OF RESOURCES IN THE CLUSTER ENVIRONMENT
210
RESERVING A FIRST GROUP OF RESOURCES AND GUARANTEEING TO THE REQUESTOR A RESPONSE TIME TO PROCESS THE REQUEST
212
EVALUATING RESOURCES WITHIN THE CLUSTER ENVIRONMENT TO DETERMINE IF THE RESPONSE TIME CAN BE IMPROVED
214
CAN THE RESPONSE TIME CAN BE IMPROVED?
216
NO
YES
YES - CANCELING THE RESERVATION FOR THE FIRST GROUP OF RESOURCES AND RESERVING A SECOND GROUP OF RESOURCES TO PROCESS THE REQUEST AT THE IMPROVED RESPONSE TIME
218

FIG. 2C

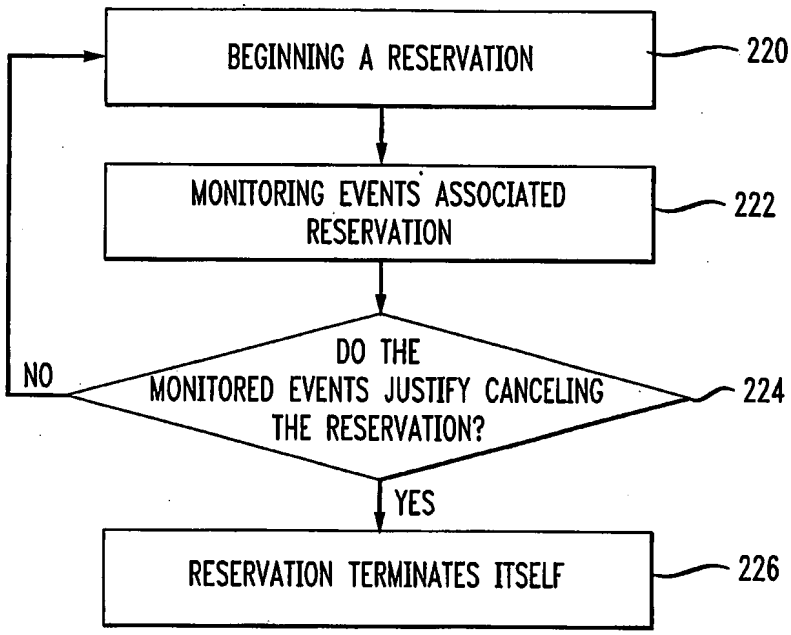

BEGINNING A RESERVATION
220
MONITORING EVENTS ASSOCIATED RESERVATION
222
DO THE MONITORED EVENTS JUSTIFY CANCELING THE RESERVATION?
224
NO
YES
RESERVATION TERMINATES ITSELF
226

FIG. 2D

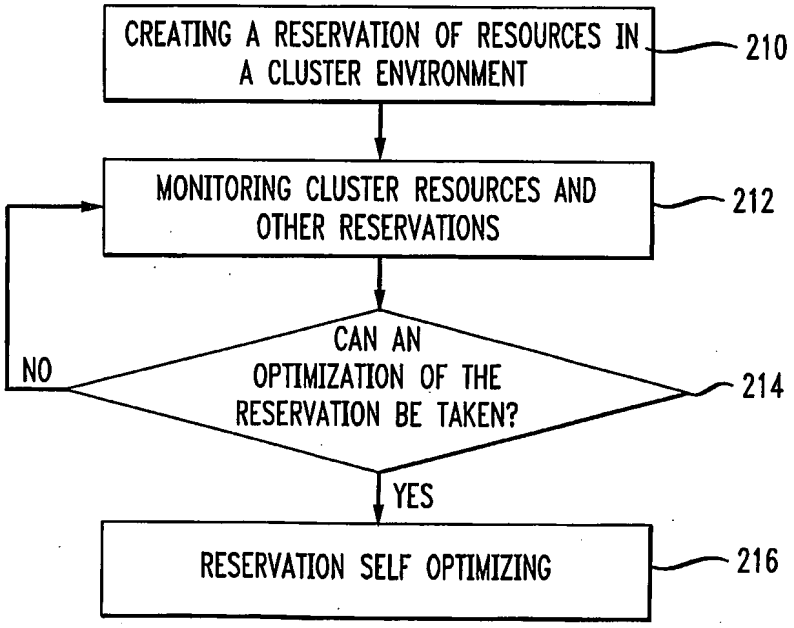

CREATING A RESERVATION OF RESOURCES IN A CLUSTER ENVIRONMENT
210
MONITORING CLUSTER RESOURCES AND OTHER RESERVATIONS
212
CAN AN OPTIMIZATION OF THE RESERVATION BE TAKEN?
214
NO
YES
RESERVATION SELF OPTIMIZING
216

FIG. 2E

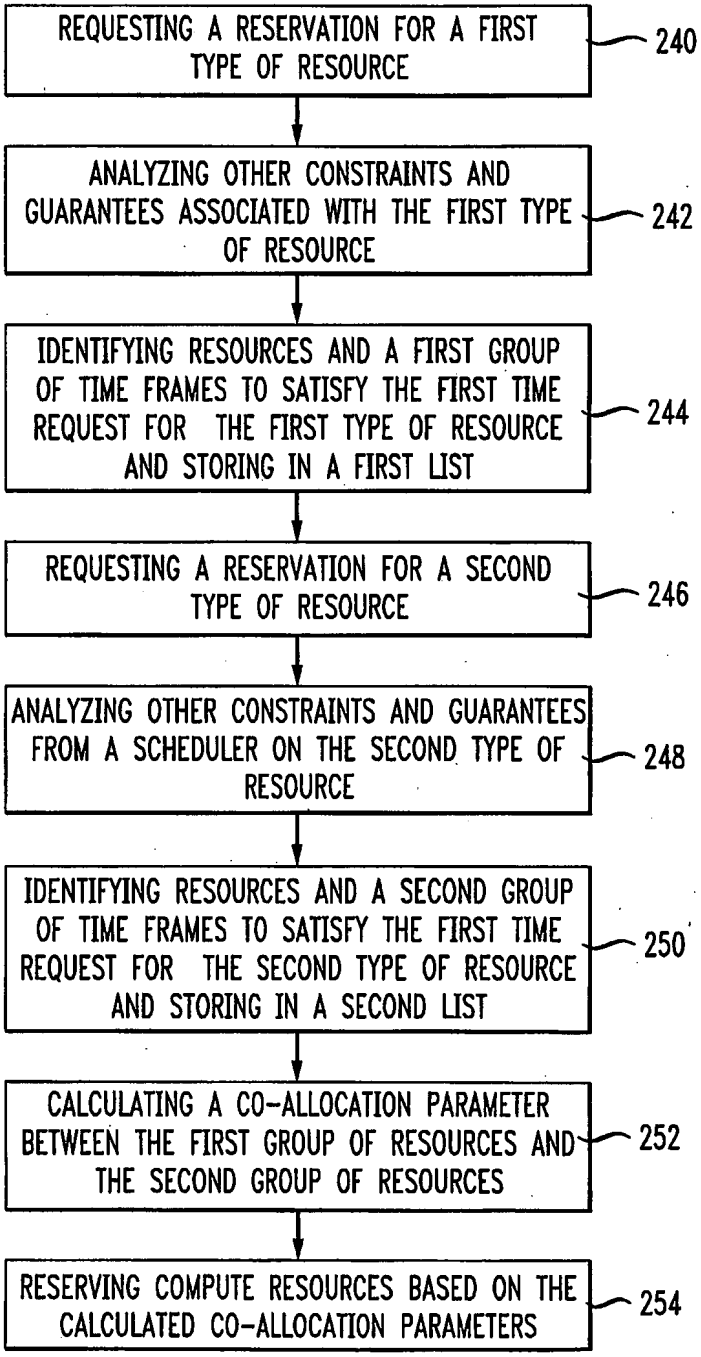

REQUESTING A RESERVATION FOR A FIRST TYPE OF RESOURCE
240
ANALYZING OTHER CONSTRAINTS AND GUARANTEES ASSOCIATED WITH THE FIRST TYPE OF RESOURCE
242
IDENTIFYING RESOURCES AND A FIRST GROUP OF TIME FRAMES TO SATISFY THE FIRST TIME REQUEST FOR THE FIRST TYPE OF RESOURCE AND STORING IN A FIRST LIST
244
REQUESTING A RESERVATION FOR A SECOND TYPE OF RESOURCE
246
ANALYZING OTHER CONSTRAINTS AND GUARANTEES FROM A SCHEDULER ON THE SECOND TYPE OF RESOURCE
248
IDENTIFYING RESOURCES AND A SECOND GROUP OF TIME FRAMES TO SATISFY THE FIRST TIME REQUEST FOR THE SECOND TYPE OF RESOURCE AND STORING IN A SECOND LIST
250
CALCULATING A CO-ALLOCATION PARAMETER BETWEEN THE FIRST GROUP OF RESOURCES AND THE SECOND GROUP OF RESOURCES
252
RESERVING COMPUTE RESOURCES BASED ON THE CALCULATED CO-ALLOCATION PARAMETERS
254

FIG. 3A

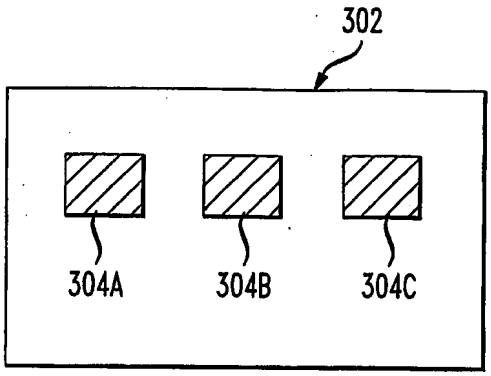


FIG. 3B

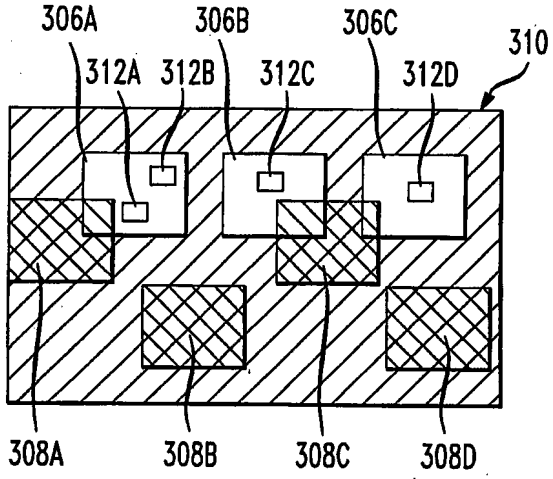


FIG. 4

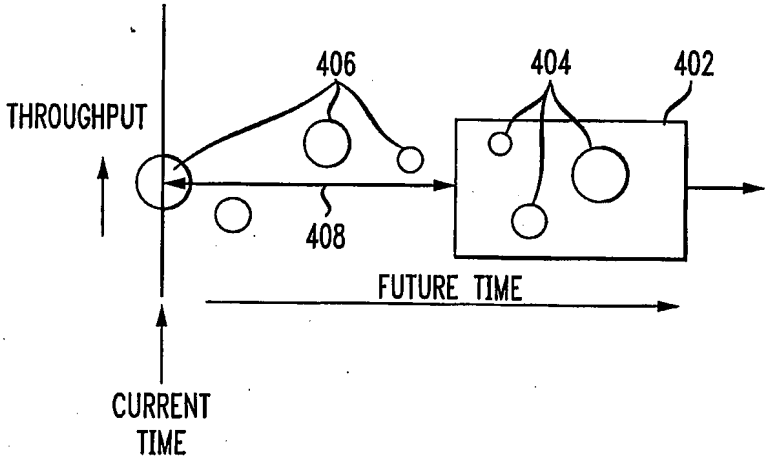


FIG. 5

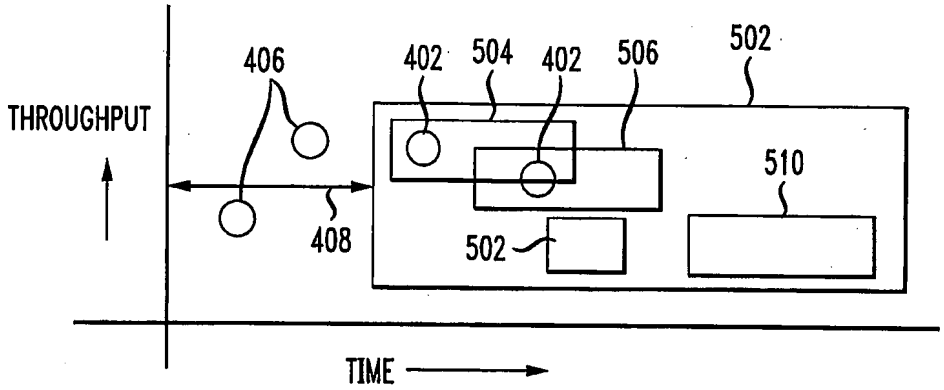

THROUGHPUT
406
402
504
402
506
502
510
408
502
TIME

FIG. 6

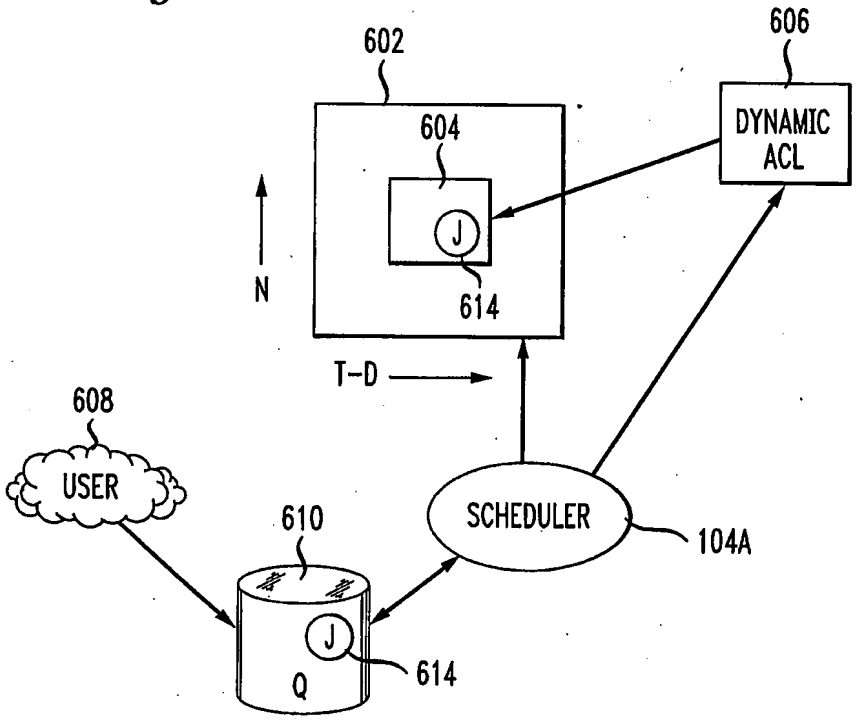
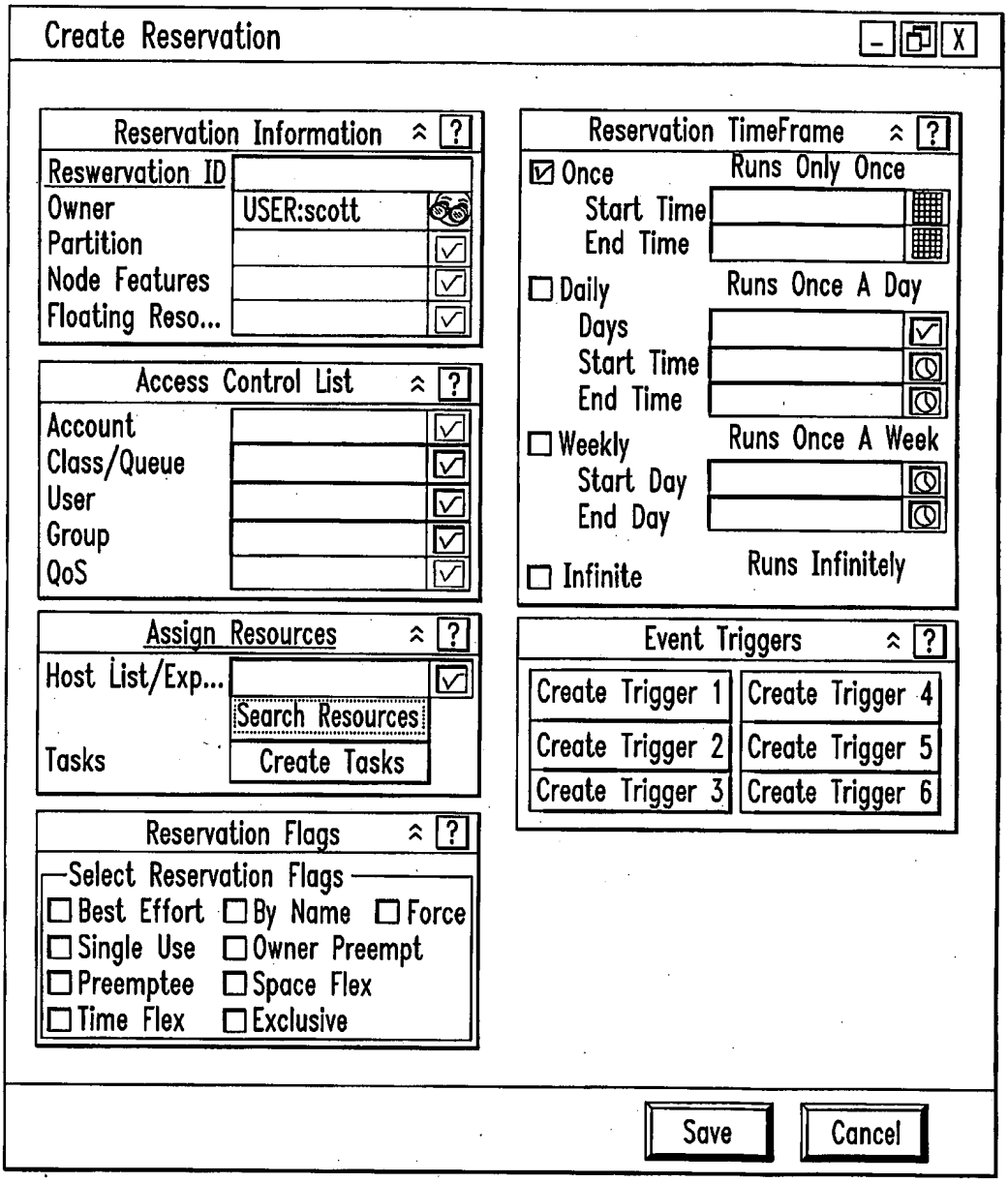

602
606
604
DYNAMIC ACL
J
N
614
T-D
608
USER
SCHEDULER
104A
610
J
614
Q

FIG. 7


Create Reservation
Reservation Information
Reswervation ID
Owner
USER:scott
Partition
Node Features
Floating Reso...
Access Control List
Account
Class/Queue
User
Group
QoS
Assign Resources
Host List/Exp...
Search Resources
Tasks
Create Tasks
Reservation Flags
Select Reservation Flags
Best Effort
By Name
Force
Single Use
Owner Preempt
Preemptee
Space Flex
Time Flex
Exclusive
Reservation TimeFrame
Once
Runs Only Once
Start Time
End Time
Daily
Runs Once A Day
Days
Start Time
End Time
Weekly
Runs Once A Week
Start Day
End Day
Infinite
Runs Infinitely
Event Triggers
Create Trigger 1
Create Trigger 2
Create Trigger 3
Create Trigger 4
Create Trigger 5
Create Trigger 6
Save
Cancel